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Sexual Compulsivity Scale: Adaptation and Validation in Spanish Population

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Q1

Sexual compulsivity has been studied in relation to high-risk behavior for sexually transmitted infections. The aim of this study was the adaptation and validation of the Sexual Compulsivity Scale to a sample of Spanish young people. This scale was applied to 1,196 (891 female, 305 male) Spanish college students. The results of principal components factor analysis using a varimax rotation indicated a two-factor solution; similar results were obtained in another study. The reliability of the Sexual Compulsivity Scale was found to be high. Moreover, the scale showed good temporal stability. External correlates were examined through Pearson correlations between the Sexual Compulsivity Scale and other constructs related with HIV prevention. The authors' results suggest that the Sexual Compulsivity Scale is an appropriate measure for assessing sexual compulsivity, showing adequate psychometric properties in the Spanish population.

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According to Kalichman and Cain (2004), *sexual compulsivity* is a propensity to experience sexual disinhibition and under controlled sexual impulses and behaviors as self-identified by individuals. It can be considered a heterogeneous psychological construct that includes a concern for and increase—in intensity and frequency—in sexual fantasies, behavior patterns, and desires that can lead to problems in daily life as (Kalichman & Cain, 2004;

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Bancroft, 2008). low self-esteem, anxiety, loneliness, impaired social skills, occupational difficulties, guilt, and shame (Black, Kehrberg, Flumerfelt, & Schlosser, 1997; Kalichman & Rompa, 1995). Furthermore, researchers have defined various symptoms related to sexual compulsivity, such as excessive pornography use, sex with multiple anonymous partners, an excessive use of Internet for sexual purposes, and increased anxiety when not engaged in sexual behavior (Parsons et al., 2008; Parsons, Severino, Grov, Bimbi, & Morgenstern, 2007).

Sexual compulsivity has also health implications because of increased risk of HIV infection and other sexually transmitted infections (Dodge, Reece, Cole, & Sandfort, 2004; Kalichman & Rompa, 1995; McCoul & Haslam, 2001). Benotsch, Kalichman, and Kelly (1999), in a study carried out with HIV-positive self-identified gay and bisexual men, found that people who scored higher in sexual compulsivity reported more frequent receptive and totally unprotected anal and oral sex acts with more partners. Other researchers have found similar results (e.g., Grov, Parson, & Bimbi, 2010; Kalichman & Rompa, 2001; Kelly, Bimbi, Nanin, Izienicki, & Parsons, 2009).

As a result of this growing interest in the relation between sexual compulsivity and high-risk behavior for HIV infection, some authors have proposed different questionnaires to evaluate sexual compulsivity (Table 1). Kalichman et al.'s (1994) study was the first attempt to assess sexual compulsivity specifically. They proposed the Sexual Compulsivity Scale (SCS) as a tool for studying underlying compulsive personality traits that may be associated with resistance to changing sexual behavior patterns despite exposure to messages and initiatives aimed at preventing HIV. We subsequently describe in detail the characteristics of this instrument.

After reviewing the literature, we decided to translate and validate the SCS because it is a short questionnaire with good psychometric properties and has been used in different studies to analyze associations between personality traits and behavior change for HIV. In this sense, the scale has been shown to be useful in the prediction of unprotected sex (Grov et al., 2010). It has also been used in different types of populations, including college students (Gullete & Lyons, 2005).

This instrument consists of 10 statements largely based on a 12-step self-help manual (CompCare, 1987) for people seeking recovery from sexual addiction. The pilot study of the scale (Kalichman et al., 1994) was conducted with a sample of sexually active men who considered themselves homosexuals ($n = 160$). The results showed high levels of reliability ($\alpha = .89$). Later, Kalichman and Rompa (1995) used the scale in two different samples: (a) one of gay men ($n = 296$) and (b) one of African American men ($n = 60$) and African American women ($n = 98$) from inner-city areas and low-income groups. The scale showed high levels of internal consistency ($\alpha = .86$ for gay men and $\alpha = .87$ for African American men and women). In

TABLE 1. Review of Sexual Compulsivity Scales

Questionnaire	Items and factors	Sample	Psychometrics properties: Internal consistency
The Perceived Sexual Control Scale (Exner, Meyer-Bahlburg & Ehrhardt, 1992)	20 items grouped into two factors: Control of sex drive and Control of risk	Community members and college students (mostly gay men)	0.67 to 0.87
Compulsive Sexual Behavior Inventory (Coleman, Miner, Ohlerking and Raymond, 2001)	42 items grouped into three factors: control, abuse, and violence	Psychotherapy clients, community members and college students (male, female, gay and heterosexual)	0.67 to 0.87
Yale-Brown Obsessive Compulsive Scale-Compulsive Sexual Behavior (Morgenstern, Parsons, Muench, Hollander, Bimbi & Irwin, 2004)	10 items	Gay and bisexual male community members.	0.80 to 0.91
Sexual Symptom Assessment Scale (Raymond, Lloyd, Miner & Kim, 2007).	12 items	Male psychotherapy clients	0.92
Compulsive Sexual Behavior Consequences Scale (Muench et al., 2007)	21 items	Gay and bisexual male community members	0.86 to 0.89
Cognitive and Behavioral Outcomes of Sexual Behavior Scale (McBride, Reece & Sanders, 2007).	36 items grouped into two scales: cognitive outcomes scale and behavioral outcomes scale	College students	0.86 to 0.89

both samples, there are significant correlations between sexual compulsivity, high-risk sexual behavior, and drug use before sex.

Although this scale has been used to evaluate sexual compulsivity, especially among individuals belonging to groups deemed at high risk or HIV-positive individuals, the few studies conducted in college students suggest that higher scores in sexual compulsivity are associated with a higher number of unprotected sexual encounters (Dodge et al., 2004; Gulleto & Lions, 2005). To design optimal prevention campaigns, it is necessary to identify the characteristics of those most likely to engage in high-risk behavior (McBride, Reece, & Sanders, 2008).

The aim of our study was therefore to translate, adapt, and validate the SCS of Kalichman et al. (1994) in a Spanish population that has been little studied—young people—represented here by a sample of college students. Although college students have not been identified as a risk population theoretically, several studies in Spain and in other countries have emphasized the high prevalence of risky sexual behavior in this population (Ballester, Gil, Giménez, & Ruiz, 2009; McBride et al., 2008; Rolison, 2002).

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METHOD

Participants

The questionnaire was responded by 1,196 Spanish college students of the Jaume I University and the University of Valencia, ranging between 18 and 26 years of age. Most participants were women (74.5%) who were 18–20 years old (60.9%; $M = 20.22$, $SD = 2.11$), heterosexual (95.5%) and nonpracticing Catholics (44.7%) or atheists (43.9%).

Measures and Instruments

Participants responded individually to the SCS. To assess convergent and divergent validity, the participants also answered the Sexual Sensation Seeking Scale (Kalichman et al., 1994), the Spanish version of the Beck Depression Inventory (Beck, Rush, Shaw, & Emery, 1979 [translated by Sanz & Vázquez, 1998]) and The Brief Version of the Fear of Negative Evaluation Scale (Leary, 1983). Last, they responded to the Cuestionario de Prevención del Sida (“AIDS Prevention Questionnaire”; Ballester, Gil, Guirado, & Bravo, 2004), which was developed in Spanish.

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We subsequently explain these questionnaires:

- SCS (Kalichman et al., 1994): This scale consists of 10 Likert-type items that assess sexual compulsivity, measured on a scale ranging from 1 (*not at all like me*) to 4 (*very much like me*), with a total score between 10 and 40. The internal consistency of the instrument applied to a sample of college

112 students was .76 for men and .81 for women (Reece, Plate, & Daughtry,
113 2001).

114 • Sexual Sensation Seeking Scale (Kalichman et al., 1994): This scale is de-
115 signed to measure “the propensity to attain optimal levels of sexual excite-
116 ment and to engage in novel sexual experiences.” It consists of 9 Likert-type
117 items measured on a 4-point scale ranging from 1 (*not at all like me*) to
118 4 (*very much like me*), with a total score range between 9 and 36. The
119 instrument has shown an internal consistency of .81 in various samples,
120 such as gay men (Kalichman & Rompa, 1995) and college students (Gray
121 & Wilson, 2007).

122 • Beck Depression Inventory in its Spanish Version (Sanz & Vázquez, 1998):
123 This scale is a 21-question multiple-choice self-report inventory that reflects
124 cognitive, affective, behavioral, and somatic symptoms of depression in
125 relation to the 7 previous days. The items are answered according to
126 a 4-point scale denoting different levels of severity and intensity. The
127 Spanish version has shown good internal consistency in a sample of college
128 students (.83).

129 • Cuestionario de Prevención del Sida (CPS; “AIDS Prevention Question-
130 naire”): This questionnaire, by Ballester et al. (2004), consists of 65 items
131 referring to HIV infection, transmission routes, preventive methods and
132 behaviors, antibodies test, and attitude toward HIV-positive people. Inter-
133 nal consistency of the scale in a sample of college students was properly
134 analyzed ($\alpha = .70$; Ballester, Gil, & Giménez, 2007).

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135 We present the SCS validated in this work for the Spanish population in
136 Appendix A.

137 Procedure

138 We informed 1,196 participants of the purpose of the study. The research
139 team told participants that they would be assessed on several sexual be-
140 haviors in young people. Then, they completed the SCS voluntarily, anony-
141 mously, and confidentially in one sitting during class time thanks to the
142 collaboration of lecturers in different degree courses. In addition, the first
143 300 tested students also responded to questionnaires described earlier. After
144 a week, 100 randomly selected participants answered the SCS a second time.
145 Our research group translated the Sexual Sensation Seeking Scale (Kalichman
146 et al., 1994) and the SCS (Kalichman et al., 1994) according to the established
147 international strategies (Hambleton, Merenda, & Spielberger, 2005).

148 Statistical Analysis

149 We used SPSS to perform all of our analyses. We used a principal compo-
150 nent factor analysis using varimax rotation to ascertain the factorial structure

of the questionnaire. In addition, we performed a descriptive analysis of items and calculated internal consistency using Cronbach's alpha coefficient. We examined convergent validity through Pearson correlations between the SCS and other constructs related to HIV prevention (total score of Sexual Sensation Seeking Scale, Beck Depression Inventory, and an item from the Cuestionario de Prevención del Sida that requested information about the number of sexual partners). Selection was carried out according to the relationship between these elements and sexual compulsivity in the literature (Benostch et al., 1999; Gullele & Lions, 2005; Kalichman, Greenberg, & Abel, 1997; Kalichman & Rompa, 1995, 2001; Raymond, Coleman, & Miner, 2003). We calculated test-retest reliability through Pearson's correlation coefficient.

RESULTS

Factorial Structure of the SCS

We obtained an index of .896 in the Kaiser-Meyer-Olkin test, and Bartlett test of sphericity results of $\chi^2(45) = 3551.851, p < .001$. We therefore concluded that factor analysis was appropriate.

We performed a factor analysis by extracting the principal components with varimax rotation, revealing a two-factor solution with eigenvalues higher than one, which explained 52.74% of total variance (Table 2). The first factor, with an eigenvalue of 4.237, accounted for 42.37% of the variance and included five items (1, 2, 3, 4, and 10) that represented an "interference of sexual behavior" whereby sexual compulsivity caused interpersonal relationship problems and social maladjustment. The second one, with an eigenvalue of 1.037, accounted for 10.37% of variance and represented a "failure to control sexual impulses" and entailed personal discomfort associated with sexual compulsivity (Items 5, 6, 7, 8, and 9).

Descriptive Analysis of Items

In the total sample, the ratings given to the items ranged between 1.141 and 1.623. Table 3 shows that Items 5 and 6 had the highest scores and Items 2 and 4 had the lowest. In the men sample, the scores ranged between 1.24 and 1.84. Items 6 and 9 scored higher, while Items 2 and 4 scored lower. In the female sample, Items 5 and 6 were rated higher. In both samples, Items 2 and 4 were rated lower.

Internal Consistency

To analyze internal consistency, we calculated Cronbach's alpha coefficient for total scale ($\alpha = .837$). Correlations of individual items with corrected total

TABLE 2. Results of a Principal Components Analysis

Subscale and items	Factor 1	Factor 2	Communalities
Interference of sexual behavior			
1. My sexual appetite has gotten in the way of my relationships.	0.690	0.221	0.525
2. My sexual thoughts and behaviors are causing problems in my life.	0.751	0.128	0.581
3. My desires to have sex have disrupted my daily life.	0.674	0.315	0.553
4. I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors.	0.603	0.174	0.394
10. It has been difficult for me to find sex partners who desire having sex as much as I want to.	0.547	0.223	0.349
Failure to control sexual impulses			
5. I sometimes get so horny I could lose control.	0.118	0.765	0.600
6. I find myself thinking about sex while at work.	0.181	0.708	0.534
7. I feel that my sexual thoughts and feeling are stronger than I am.	0.265	0.773	0.669
8. I have to struggle to control my sexual thoughts and behavior.	0.399	0.682	0.624
9. I think about sex more than I would like to.	0.413	0.524	0.445

187 score of the SCS, that is, the total score regardless of the item concerned,
 188 ranged between 0.434 and 0.675 (see Table 3). In the interference subscale,
 189 correlations ranged between 0.402 and 0.549. In the failure to control sexual
 190 impulses subscale, correlations ranged between 0.505 and 0.661.

191 Construct Validity

192 To examine convergent validity, we used data from 300 participants who
 193 answered the SCS, the Sexual Sensation Seeking Scale (Kalichman & Rompa,
 194 1995), the Beck Depression Inventory (Beck et al., 1979), and the Cues-
 195 tionario de Prevención del Sida (Ballester et al., 2004). Of total participants,
 196 18 were removed because of a failure to respond to all items in the ques-
 197 tionnaires. Therefore, we used data from 282 participants.

198 Convergent Validity

199 We calculated convergent validity using Pearson's correlation coefficient be-
 200 tween the SCS, the Sexual Sensation Seeking Scale (Kalichman & Rompa,
 201 1995), the Beck Depression Inventory (Beck et al., 1979) and the number
 202 of sexual partners, an item included in CPS (Ballester et al., 2004). Sexual

TABLE 3. Descriptive Analysis of Items

Item	Total (<i>N</i> = 1,196)		Men (<i>n</i> = 302)		Women (<i>n</i> = 891)		Item-to-total correlation for Sexual Compulsivity Scale	Item-to-total correlation for Factor 1	Item-to-total correlation for Factor 2
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>			
1. My sexual appetite has gotten in the way of my relationships.	1.192	0.512	1.37	0.65	1.13	0.44	0.530	0.542	
2. My sexual thoughts and behaviors are causing problems in my life.	1.159	0.466	1.27	0.60	1.12	0.40	0.493	0.524	
3. My desires to have sex have disrupted my daily life.	1.185	0.487	1.35	0.65	1.13	0.40	0.584	0.549	
4. I sometimes fail to meet my commitments and responsibilities because of my sexual behaviors.	1.141	0.407	1.24	0.52	1.10	0.36	0.434	0.424	
5. I sometimes get so horny I could lose control.	1.515	0.787	1.67	0.91	1.46	0.74	0.525		0.546
6. I find myself thinking about sex while at work.	1.623	0.801	1.84	0.88	1.55	0.76	0.536		0.545
7. I feel that my sexual thoughts and feeling are stronger than I am.	1.285	0.587	1.47	0.74	1.22	0.51	0.650		0.661
8. I have to struggle to control my sexual thoughts and behavior.	1.288	0.573	1.50	0.75	1.22	0.47	0.675		0.642
9. I think about sex more than I would like to.	1.434	0.722	1.75	0.86	1.33	0.64	0.560		0.505
10. It has been difficult for me to find sex partners who desire having sex as much as I want to.	1.249	0.598	1.53	0.78	1.16	0.50	0.435	0.402	

compulsivity rarely—if ever—stands alone. There are often comorbid issues in sexual compulsivity such as sexual dysfunction, physiological issues, other substances or addictions, depression and anxiety, or posttraumatic stress disorder (Delmonico & Griffin, 2011). Furthermore, there are several studies in literature that have concluded that sexual compulsivity and sexual sensation seeking had a significant contribution to realization of sexual risk behaviors (Beck, Thombs, Mahoney, & Fingar, 1995; Reece et al., 2001). As expected, our results show that the scale had a significant positive correlation with Sexual Sensation Seeking Scale ($r = 0.444$, $p < .000$), Beck Depression Inventory ($r = 0.161$, $p < .007$) and with the number of sexual partners, an item of Cuestionario de Prevención del Sida ($r = .203$, $p < .001$).

Test-Retest Reliability

Of the total sample ($N = 1,196$), 100 young people answered the SCS a week later, but 9 of these were excluded because of their failure to answer any of the items. We therefore analyzed test-retest reliability with 91 participants by calculating Pearson's correlation coefficient. There were significant correlations in both total scale and subscales between the two occasions of administration. Thus, correlation between total scale score in each pass was 0.725 ($p < .01$).

DISCUSSION

In previous studies, Kalichman and Cain (2004) and McBride et al. (2008) found a two-factor solution for the SCS. Both called these factors in the same way: Factor 1 was called *social disruptiveness* and Factor 2 was called *personal discomfort*. However, some items (2, 5, 6, and 7) are grouped on opposite factors on these studies. In our study, there is also a two-factor solution, but we have named them differently. Factor 1 was labeled as *interference of sexual behavior*, while Factor 2 was called "*failure to control sexual impulses*". When analyzing the two factors obtained, it is apparent that they both reflect variations in factor loadings of individual items compared to those obtained in the study by McBride et al. (2008), which was also conducted with a sample of young people. However, our results are similar to those obtained by Kalichman and Cain (2004) in a sample of men and women receiving services from sexually transmitted infection clinic with different ages to those in our study. There is a difference in factor loading of Item 10, "It has been difficult for me to find sex partners who desire having sex as much as I want to." The item belongs to the *personal discomfort* factor in the study of Kalichman et al. (2004), while it belongs to the *interference of sexual behavior* factor in our sample.

241 Relating to descriptive analysis of the items, the sample of the present
 242 study has the lowest scores of sexual compulsivity compared with other
 243 samples in other studies.

244 Because sexual compulsivity has been associated to risky sexual behav-
 245 iors and increased sexual frequency, it is reasonable that means obtained
 246 in the college students sample were lower than those of other that assessed
 247 M/MSMW campus cruisers (Reece & Dodge, 2004), people living with HIV
 248 (Benotsch, Kalichman, & Pinkerton, 2001; Kalichman & Rompa, 2001; Reece,
 249 2003) or gay/bisexual male sex workers (Parson et al., 2001). In contrast, it
 250 is important to note that in all studies the mean score of sexual compulsivity
 251 is higher in men than in women; educational and social factors may possibly

Q9 252 account for these differences.

253 In terms of reliability, SCS has shown good internal consistency in total
 254 scale ($\alpha = .837$) and in subscales. (Internal consistency of the scale obtained
 255 in this study is slightly higher than that found by Dodge et al. (2004) among
 256 students aged 18 to 25 years old ($\alpha = .82$). However, our result is slightly
 257 lower than the pilot study of the scale undertaken by Kalichman et al. (1994)
 258 in which participants were sexually active men who considered themselves
 259 homosexual ($\alpha = .89$). It was also been slightly lower than the original study
 260 by Kalichman and Rompa (1995) of gay men ($\alpha = .86$) and of primarily
 261 African American men and women in inner-city areas on low incomes ($\alpha =$
 262 .88). In any case, few differences are mere hundredths, that is, the results
 263 are virtually identical.

264 In relation to convergent validity, this study found significant relation-
 265 ships between SCS and another measures. As expected, the Sexual Sensation
 266 Seeking Scale, the number of sexual partners and the participation in risky
 267 behavior correlated positively and significantly with SCS. Our result is con-
 268 sistent with those obtained in previous studies, where it was concluded that
 269 the Sensation seeking and sexual compulsivity had a significant contribution
 270 to realization of risky sexual behaviors (Beck et al, 1995; Reece et al., 2001).
 271 In another study, age, sexual sensation seeking, and sexual compulsivity
 272 were shown as predictors of risk behaviors (Gullette & Lyons, 2005). Refer-
 273 ring to depression, our results show significant positive correlations between
 274 this variable and sexual compulsivity. This is also in line with the literature
 275 reviewed. Across studies, people with high scores on compulsivity have
 276 extremely high rates of psychological disorders, in particular depression,
 277 anxiety disorders and substance use disorders (Black et al., 1997; Raymond
 278 et al., 2003).





279 As for the scale's temporal stability, the results of this study show that
 280 it is high for the scale. That value is similar to previous studies (Kalich-
 281 man & Rompa, 1995). The results obtained suggest that the SCS built by
 282 Kalichman et al. (1994) and translated by our team for Spanish population,
 283 is an appropriate measure for evaluating sexual compulsivity related with

284 HIV prevention in young people. The scale shows adequate psychometric
285 properties.

286 Our study has some limitations that should be considered in future
287 research, such as number of participants of each sex—there were many
288 more women than men in this study— and sexual orientation—most of the
289 individuals in this sample were heterosexual students.

290 It is highly desirable to complete the sample with more men and people
291 with different sexual orientations. Furthermore, it would be interesting to use
292 a clinical group of patients suffering from sexual compulsivity to compare
293 their scores with those of the general population and thus to establish a
294 cutoff point with greater clinical significance.

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Q14

Q15

Q16

Q17

APPENDIX I

ESCALA DE COMPULSIVIDAD SEXUAL

Ballester, Gil, Ruiz, Giménez y Gómez (Traducida de

Kalichman et al., 1994)

Q18 404 A continuación se presentan una serie de afirmaciones sobre tu compor-
 405 tamiento sexual. Por favor, contesta con sinceridad, tus respuestas son
 anónimas y confidenciales.

	Nada característico de mí	Algo característico de mí	Bastante característico de mí	Muy característico de mí
1. Mi gran apetito sexual ha sido un obstáculo en mis relaciones.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2. Mis pensamientos y comportamientos sexuales me están causando problemas en la vida.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3. Mis deseos de tener sexo han afectado a mi vida cotidiana.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4. A veces no consigo cumplir con compromisos y responsabilidades a causa de mis comportamientos sexuales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
5. A veces llego a ponerme tan caliente que podría perder el control.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
6. Me sorprende a mi mismo pensando sobre sexo en el trabajo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
7. Siento que mis pensamientos y sensaciones sexuales son más fuertes que yo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
8. Tengo que luchar para controlar mis pensamientos y comportamientos sexuales.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
9. Pienso en sexo más de lo que me gustaría.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
10. Me ha resultado difícil encontrar parejas sexuales que desearan tener sexo tanto como yo.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Total score: Sum of all items rated from 1 to 4.

Subscale "Interference": Sum of items 1, 2, 3, 4 and 10.

Subscale "Failure to control sexual impulses": Sum of items 5, 6, 7, 8, 9.